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MEMORANDUM FOR: Deputy Director for Science and Technology

SUBJECT : Comments On The Use of Human Factors Engineering (HFE) In CIA

1. About every two years I feel compelled to beat the drum for more rational and extensive use of Human Factors Engineering in Agency technical programs whether they be collection or production oriented. Indeed, I know of no system within the Agency that does not involve some degree of man-machine interface.

2. HFE has come a long way since the early studies in the 1920's at the Hawthorne Plant and other pilot studies. It is now possible to quantify the optimal information flow to the user in a fairly rigorous way. It is also increasingly apparent in government and industry that HFE must be considered at the beginning of a program and continue right through its development.

3. Typically, government agencies and industry have missed using HFE in the following ways:

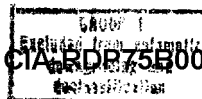
a. HFE is not brought into a program until trouble arises, usually at the point where design fixes have been made and modifications would be costly.

b. There is also a tendency to use contract HF Engineers attached to the prime contractors. Although these individuals may be technically qualified, the learning curve with respect to the needs of the ultimate user is absent due to the lack of familiarity with the problem. In many cases contract Human Factors Engineers tend to focus on particular sub-systems under development by their company and lose sight of the total system.

4. There have been many instances where HFE has been used to great advantage. As an example, this Agency, at the urging of

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several of us, hired a Human Factors Engineer, GS-12, full time at NPIC to monitor a [] program under contract with []
[] Within a matter of a year the cost of the program was reduced by 50%. More importantly, the program was focused on the real problems which led to the [] facility and has provided substantial benefits to NPIC. The savings to the Agency are obvious. It becomes even more important to consider the judicial use of HFE in the light of the recent Planning Guidance document from the Director and OPPB for FY74-FY78 which clearly states that more efficient use of man power and planning will be required in the face of reduced man power and budget.

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5. I hope that you will have an opportunity to read my memorandum and the attached document which indicates a few of the areas in which HFE has been used during the past year or two. The purpose of my memorandum is to reinforce the importance of this area as we develop new systems with the hope that you are considering Human Factors engineering when new programs are brought to your attention. The Agency already has a modest in-house capability to support and monitor HFE.

[]
Deputy Director
of
Research and Development

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